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REMARKS / DISCUSSION OF ISSUES

Claims 1-17 are pending in the application. Claims 1-8 stand rejected, claim 6 is amended, and claim 9-17 are withdrawn by the Examiner.

Objection to the Specification

The Office action objects to the specification for not supporting 30 degrees Celsius. 30 degree Celsius is found only in claim 6. The specification only references 30 degrees when discussing the Kelvin temperature below a strain point. While Applicant notes that 30 degrees Kelvin below a strain point is exactly the same as 30 degrees Celsius below that point, claim 6 is amended to recite 30 degrees Kelvin.

Accordingly, withdrawal of the objection to the specification is respectfully requested.

Rejections of Claims 1, 7, and 8 under 35 U.S.C. §102(b)

The Office Action rejects claims 1, 7, and 8 under 35 U.S.C. 102(b) as being unpatentable over Torok, US Patent 3,258,324. Applicants respectfully traverse this rejection.

Claim 1 recites a method of manufacturing a display tube by press-forming a glass panel to have inner corners, and then cooling the formed glass panel such that the surface temperatures of the inner corners remain below a strain point temperature.

Torok discloses a glass pressing apparatus having a mold or plunger that can control the heat at a formed glass article. The Examiner relies on Torok as teaching that the temperature at the flange area of a glass element has a temperature around 829F, while the center wall temperature may be around 915 if a shim is inserted. However, the Examiner misreads Torok. The cited temperatures of 829F and 915 represent different examples that explain how Torok's invention can control temperature. Torok actually provides three examples.

The first example assumes that a liquid metal in the glass mold wets the inner and outer members of the mold, see column 3, lines 42-50. In that case, what Torok

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states is the "Outer water temperature," but which should be the "Outer Wall Temperature" is 739 F, see column 3, lines 63. The second example is if the liquid metal in the mold does not wet surfaces 21 and 22. In that case, an additional heat rise of 90 results, which causes the outer wall temperature to become 829 F. See, column 3, line 69 through column 4, line 4. The third example is if shims are added. One shim, which has two surfaces, will cause the temperature of the outer wall surface to rise to 915 (which actually should be 919F). The Examiner incorrectly uses those examples of how Torok works to suggest that Torok teaches glass forming with higher center temperatures than inner corner temperatures.

More fundamentally, the Examiner's position that the inner corners of a glass display inherently remain at temperatures below the strain point temperature of the glass when the glass is used for a television tube is inapplicable with regard to claim 1. Claim 1 relates to press-forming a glass panel to form inner corners, and then cooling the glass panel such that the surface temperatures of the inner corners remain below a strain point temperature. It is while cooling that the temperature remains below the strain point temperature. Residual re-heating does not cause the temperature to rise above the strain point temperature.

Torok does not teach or suggest forming a glass panel and then cooling such that the inner corners remain below a strain point temperature as recited in claim 1. Consequently, claim 1 is allowable. Furthermore, claims 7, and 8, which depend from claim 1 and recite additional limitations, are also allowable. Accordingly, withdrawal of the 35 U.S.C. §103(a) rejections of claims 1, 7, and 8 is respectfully requested.

Rejections of Claims 1, 3, and 4 under 35 U.S.C. § 103(a)

The Office Action rejects claims 1, 3, and 4 under 35 U.S.C. 103(a) as being unpatentable over d'Iribarne et al. (US 4,826,522) in view of Littleton et al. (US Patent 2,285,596). Applicants respectfully traverse this rejection.

d'Iribarne et al. discloses a method of making tempered glass sheets having reinforced edge stresses. Those edge stresses are formed by cooling the edges faster than the remainder of the sheet. In contrast, claim 1 recites a method of

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manufacturing a display tube by press-forming a glass panel to have inner corners (not edges) and then cooling the formed glass panel such that the surface temperatures of the inner corners remain below a strain point temperature during cooling.

If the principles of d'Iribarne et al. were applied to a display tube, the result would be stressed edges but unstressed inner corners. While the edges might be strengthened, residual heat in the thick glass corners would stress-relieve the glass panel, leaving it subject to tensile damage.

Littleton et al. does nothing to close the substantial gap between claim 1 and d'Iribarne et al. Littleton et al. discloses a method of tempering glass using repeated quenching. Combining the quenching method of Littleton et al. with the edge tempering of d'Iribarne et al. might be possible as a method of edge tempering, but it does not suggest a method of press-forming a display tube and then cooling inner corners such that the inner corner surface temperature remains below a strain point temperature.

Consequently, since claim 1 is patentable over the combination of d'Iribarne et al. and Littleton et al., claims 3 and 4, which depend from claim 1, are also allowable. Accordingly, withdrawal of the rejection of claims 1, 3, and 4 under 35 U.S.C. §103 is respectfully requested.

Rejections of Claims 2, 5, and 6 under 35 U.S.C. § 103(a)

The Office Action rejects claims 2, 5, and 6 under 35 U.S.C. 103(a) as being unpatentable over d'Iribarne et al. (US 4,826,522) and as evidenced by Littleton et al. (US Patent 2,285,596). Applicants respectfully traverse this rejection.

As noted above, independent claim 1 is patentable over the combination of d'Iribarne et al. and Littleton et al. Consequently, claims 2, 5, and 6, which depend from claim 1, are also allowable. Accordingly, withdrawal of the rejection of claims 2, 5, and 6 under 35 U.S.C. §103 is respectfully requested.

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Reply to "Response to Arguments"

Applicants respectfully disagree with the Examiner that their arguments do not comply with 37 CFR 1.111(c). After further consideration of the relied on references and the positions taken by the Examiner, the Applicants assert that the Examiner misreads the claimed invention. The Examiner's position is that claims recite that the surface temperature of the inner corners must remain below the strain point temperature after cooling. However, claim 1 recites that it is during cooling (not after) that the surface temperature of the inner corners remain below a strain point temperature. Applicants suggest that the Examiner consider claim 1 in two parts, first forming the inner corner and then cooling them. The subject invention prevents residual heat from unstressing the inner corners while cooling.

The Amendment mailed on December 1, 2004 amended the claims to better define the invention by adding that the inner corners were formed and then specifying that cooling was the glass panel such that the surface temperatures of the inner corners remained below a strain point temperature.

With regard to d'Iribarne, the Examiner's arguments with respect to cooling of edges are inapplicable to the present invention. The inner corners of a display tube are not at the edges. Furthermore, Applicant's do not understand the significance of d'Iribarne's constant thickness glass panels. The present invention relates to cooling surfaces of inner corners to prevent unstressing of the corners.

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CONCLUSION


The Applicants submit that all pending claims are in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly requested.

If the Examiner deems that a telephone call would further the prosecution of this application, the Examiner is invited to call Mr. Eric Bram at (914) 333-9635 or John M. Kelly at (732) 530-9404. All correspondence should continue to be sent to the address of record (not to the signing attorney).

If these papers are not considered timely filed by the United States Patent and Trademark Office, or if any additional fees are required, kindly charge that fee to deposit account number 20-0782.

Respectfully submitted,

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John M. Kelly, Attorney
Reg. No. 33,920
(732) 530-9404

Moser, Patterson & Sheridan, LLP
Attorneys at Law
595 Shrewsbury Avenue
Suite 100
Shrewsbury, NJ 07702
Telephone: 732-530-9404
Facsimile: 732-530-9808